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for the specimens of fossil fishes loaned to them by the permission of the Society, for comparison and description, and returning the same to the Cabinet.

April 25th, 1848.

Vice President MORTON in the Chair.

The Committee to whom was referred Dr. Bachman's communications in relation to the generation of the Opossum, and also the letter of Dr. Middleton Michel, of Charleston, S. C., on the same subject, addressed to the Rev. Dr. Bachman, reported in favor of publication.

Notes on the Generation of the Virginian Opossum (Didelphis Virginiana.)

By JOHN BACHMAN, D. D.

Under an impression that the following extracts from notes made at intervals during the last few years, may throw some additional light on the natural history of one of the most interesting of American quadrupeds, I communicate them for the information of the Society.

March 1st, 1846.—Received to-day five female opossums, captured last night. One of these had ten young in the pouch; another nine; the third had eleven; the fourth fourteen. They were all very diminutive, and appeared to be nearly the same age—about two or three days. The fifth was a small animal of the preceding autumn, and I was doubtful whether she had been impregnated.

March 3d.—On the evening of this day, I examined my small female opossum. The mammary organs were considerably distended, and I began to suspect that I had erred in my previous conjectures, and concluded to dissect her on the following day.

March 4th.—At 7 o'clock this morning, when prepared to commence my dissection of the opossum, I discovered three young in the pouch, and supposing that so small a female would produce no additional number, I concluded that I would spare her life. She was confined in a box in a room where I was writing. When I occasionally looked at her I found her lying on her side, her body drawn up in the shape of a ball; the vulva appeared to reach the pouch, which was occasionally distended with her paws. At 6 o'clock in the afternoon, as she had appeared very restless for several hours, I was induced to examine her again, when I discovered she had added four more to her previous number, making her young family now to consist of seven. With no inconsiderable labor, and the exercise of much patience, I removed three of the young from the teat, one of which perished under the process. The three weighed twelve grains, averaging four grains each. I replaced the two living ones in the pouch; at 9 o'clock examined her and found the young again attached to the teats.

The young were naked, blind, ears protuberances covered by an integument; mouth closed, with the exception of a very small orifice sufficiently large to receive the small attenuated teat. Tail $\frac{1}{4}$ inch in length.

March 11.—Weighed the largest of the young, and found that it had increased to 30 grains. Length of body $1\frac{1}{4}$ inch, tail $\frac{1}{2}$ inch. The nostrils were now open. The young were very tenacious of life, as on removing two they remained

alive through a cool night in a room containing no fire, and still evidenced a slight motion at 12 o'clock on the following day. The teats of the mother, after the young had been gently drawn off, measured an inch in length, having been much distended, and appeared to have been drawn into the stomach of the young.

March 16th.—The dark color of the eye can be seen through the transparent skin, but it is still perfectly closed. A few hairs have made their appearance on the moustache. The orifice of the ears beginning to be developed. Nails visible and sharp. The pouch of the young females is quite apparent, and the sexes may be determined as soon as born. They voided urine and excrement—used their prehensile tails, which were seen entwined around the necks of others even at a week old.

February and March, 1847.—Made a number of observations on a large number of females. As they, however, all had young in their pouches before I procured them, I will only notice one experiment made in order to ascertain the manner in which the young became attached to the teats.

March 11th.—Conjecturing that the young were aided by the mother in finding the teat, and believing that she would not readily adopt the young of another, or afford them any assistance, I removed six of the ten which composed her brood—returned two of her own to the pouch, together with three others, fully double the size, that had been obtained from another female. She was soon observed doubled up, with her nose in the pouch, and continued so for an hour, when she was examined, and one of her own small young was found attached to the teat. Seven hours afterwards she was again examined, and both the small ones were attached, but the three larger ones still remained crawling about the pouch.

March 12th.—The mother seemed now to have adopted the strangers, and the whole family of different sizes were deriving sustenance from her.

February 11th, 1848.—Having received from the country a large female that appeared to be impregnated, I this day dissected her. As soon as the uterus was removed from the body of the animal, which had just been killed and was yet warm, I observed the whole mass in irregular motion. There were nine young that would evidently have been produced in one or two days. Three were contained in one department and six in the other. They lay embedded in a thick dark-brown mucous substance, which filled and greatly distended the sacs. They possessed more life and motion than I had previously been led to suppose. One of them moved several inches on the table, and survived two hours. I attempted to weigh this uterine foetus, and as far as I could ascertain with an imperfect pair of scale, it weighed 3 grains.

Although naturalists at the present day could scarcely entertain a doubt that the process of generation in this species did not differ materially from those of the Kangaroo and other Marsupialia, yet I am not aware that the young of the Virginian Opossum had been previously detected in the uterus.

The short period of gestation, the reluctance of many of them in copulating in a state of confinement, unless perfectly domesticated, rendered the discovery one of considerable difficulty. I have moreover found, that during the period of gestation, the females, like those of some other species, particularly the Bear, can seldom be found.

In February, 1847, by offering premiums to servants, I procured from various localities, in three nights, 35 opossums, and there was not a single female in

the whole number. As soon, however, as the young were contained in the pouch, I received more females than males.

February 14th, 1848.—Dissected a small female that had been captured six days before. She proved impregnated, but in a much earlier stage of development than the one I examined three days ago. On opening the uterus, I found five on one side and seven on the other. These were nearly the size of a garden pea, and resembled pellucid vesicles. Under a microscope the germinal membranes represented a cellular structure as in other animals. The corpora-lutea corresponded with the number of ova.

The manner in which the act of copulation is effected is no longer a subject of conjecture, although I have not personally observed it. An intelligent coloured man in whose veracity I place great confidence, was requested five years ago to watch this process. He assured me that he had observed the female receiving the embraces of the male while lying on her side. Within the last few weeks, Dr. Middleton Michel of this city, an intelligent and close observer, who has devoted much time to the investigation of this subject, has observed this process with two female opossums which he has preserved in a domesticated state. He informs me that they received the male whilst lying on their right side.

From various observations I have made for the last three years, I had set down the period of gestation in the opossum at 17 days. I received a female, said by the servant to have been captured in the act of copulation. She produced her young on the seventeenth day. I had, however, placed her with a male that I kept in confinement at the time; but she exhibited such a savage temper towards him, that for the sake of peace, I was compelled to separate them after three days. Dr. Michel, however, informs me that a female in his possession, produced young on the fourteenth day. Although I was at first confident that the true period was 17 days, I think it probable that from the superior advantages Dr. Michel has possessed with his animals in a state of domestication, he may have approximated nearer to the true time than myself.

In the second volume on American Quadrupeds, now in the course of publication, the history of this animal will be treated more in detail.

Further Observations on the Generation of the Opossum.

By the Rev. Dr. BACHMAN.

February 15th, 1848.—On the morning of this day I received five female opossums from the country, three of whom I was informed by Col. Hall, (who zealously and successfully interested himself in procuring specimens for my examination), had produced young in the box in which they were confined, a day or two previous to their having been sent. Their several pouches contained eight, nine, and eleven young. There were two, as he informed me, in the state in which I was anxious to obtain them; as they had not yet produced their young. On examination, however, I discovered that one of the two had evidently brought forth amid the jolting consequent on her conveyance from the country. Five young were in the pouch. I observed, on examination, that a sixth was lying at the bottom of the box, and was still living. Supposing it possible that all the young had been excluded, I concluded to sacrifice the mother; and was repaid for an apparent cruelty, exercised very reluctantly, by

discovering that the female was still in the act of parturition ; a remaining young one was found in the vagina, within half an inch of the external surface. It was moving, head downwards, among a reddish-brown mucous mass, such as had been previously observed in the uterus of a female already referred to. There was not even the rudiment of a placenta. If it had previously existed, it must have been ruptured in the passage of the fœtus, and escaped my most careful search. I was, however, under an impression that I discovered the slight rudiment of an umbilical cord. The nostrils were open ; the lungs were filled with air ; and, on a subsequent experiment, they were observed to float on the surface of water. On dissecting the uterus it was found flaccid and nearly empty, a slight brown mucus on the sides only being visible.

On the afternoon of the same day I had the remaining female destroyed. On dissecting down to the uterus, I found it greatly distended—full of young, and, as I then supposed, near the period of production. There was a constant but irregular motion in the various parts ; and I felt confident that I would now be furnished with the long sought for opportunity of making a thorough investigation of the various particulars that required farther elucidation. I concluded, however, previously, to have a drawing made of the uterus as it presented itself in this state ; this consumed the remainder of the evening. As the weather was warm I made a slight incision in the parts, and placed the whole in alcohol. On the following morning, when, with a scientific friend, we entered on the examination, I was greatly disappointed and mortified, to find that the whole had been so much dissolved by the alcohol that we could make no satisfactory examination. The young were lying in broken fragments in the midst of the unctuous and now considerably diminished mass. I now can scarcely suppose that the motion I had observed for an hour while the drawing was in progress could have been any other than a muscular contraction and dilation of the different parts of the uterus itself, and not of the young, which were evidently not sufficiently advanced to have occasioned it.

I would here observe that where the outward integuments of animals are so very tender as those of young opossums a few days previous to their birth, it is advisable to dilute the alcohol to more than half its original strength, as I find the young one that was fully formed, taken from the mother a few moments before birth by the Cæsarean operation referred to, has been preserved in good order in alcohol thus diluted.

In conclusion I will yet add a brief summary of the present state of our knowledge of the natural history of an animal, whose anatomical structure and peculiar habits have led to the adoption of many vulgar errors, and produced several contradictory theories among physiologists. We will thus be enabled to see what important points still remain for farther investigation, and will at the same time be gratified to observe that, although our progress in the investigation of a singularly perplexed subject has been very slow, yet there has been a gradual advance in our knowledge, leading us to the conviction, that in a very few years the history of the opossum will be as correctly and familiarly known to the community at large as that of the hare or squirrel.

1. The interesting group of the Marsupialia has recently been arranged by Owen into five tribes and families, and sixteen genera : these include about seventy known species, to which additions are continually making ; the Virginian opossum being, however, the only species known in the United States. The

osteological characters of the latter species have been so accurately described and delineated that little remains to be added in this department.

2. The organs of generation being found perfect and adapted to their peculiar uses—the double uterus to the bifurcated organ of the male—should have in themselves been sufficient to have thrown doubts on the assertions of our early authors—Marcgrave, Pison, Valentyn, Beverly, the Marquis of Chastellux, Pennant, and others—that “the pouch was the matrix of the young opossum, and that the mammae are, with regard to the young, what stalks are to their fruits.”

3. The mode of copulation, although differing from that of the majority of quadrupeds, is far from being the only exception to a general law; our porcupine (*Hystrix dorsata*) may be cited as another instance. In this respect the actions of animals correspond with their peculiar organization, and the structure of the genital organs, as well as the whole anatomy of the opossum, are in accordance with this habit.

4. The question propounded in 1819, to naturalists, by Geoffroy, “Are the pouched animals born attached to the teats of the mother?” is satisfactorily answered.

5. The period of gestation being between fifteen and seventeen days, is in this respect shorter than that of any other known species (that of the Kangaroo being thirty-eight days), suggests the idea of the probability of some modification of uterine structure, approaching in some respects that of the birds and ovoviviparous reptiles.

6. Although the period of gestation is so short, the young are far more perfectly developed at birth than has been usually supposed. The views of Blumenbach, who likens them to abortions, as well as those of Dr. Barton, (I quote from Griffith as I have not recently seen the original) appear in this particular suprisingly inaccurate. “The Didelphes,” he says, “put forth, not foetuses, but gelatinous bodies; they weigh at their first appearance generally about a grain, some a little more, and seven of them together weighed ten grains.” My observations have convinced me that they are far from being merely “gelatinous bodies,” but that they are pretty well developed, indeed nearly as much so as the young of the white-footed mouse and several other species of Rodentia. They are covered by one integument—nourished by the mammae—breathe through nostrils—are remarkably tenacious of life, and are capable of a progressive movement at the moment of their birth. Hence I am not fully satisfied with the accuracy of the terms used by De Blainville and Dr. Barton—when they speak of two sorts of gestation—one uterine and the other mammary. It is admitted that for so large an animal as the adult opossum, the young are not only very small, but feeble, and are for several weeks sustained in a kind of secondary domicil, termed the pouch, where they receive warmth, and that they continue during this period firmly attached to the teats, which they do not relinquish till they are pretty well grown. It will be recollected, however, that there is in several of our animals an approach to this latter peculiarity. The white-footed mouse (*Mus leucopus*); the Florida rat (*Neotoma floridana*), and several species of Bats are known, the two former to travel, and the latter to fly about for one or two weeks, with their young attached to their teats, and that these young are not only blind and naked, but nearly as helpless as those of the opossum. It will be farther recollected that there are several species in

the extensive group of Mammals to which the opossum belongs, that are destitute of the pouch, the young in these cases adhering to the teats like those of the Florida rat, &c., exhibiting an approach to species of a different conformation.

7. The manner in which the young are placed into the pouch and attached to the teats, I have referred to in my observations on the female that brought forth her young in the room where I was sitting, on the 4th of March, 1846, (although I was not at the time aware that she was in the act of parturition). She was reclining in the corner of the cage, a little on one side, with her shoulders somewhat elevated; her body was much doubled, the vulva nearly reaching the pouch, the latter being occasionally opened by her paws. She was busily employed with her nose and mouth licking, as I thought, her pouch, but which I afterwards ascertained was her young. I came to the conclusion that she shoved them into the pouch, and with her nose or tongue moved them to the vicinity of the teats, where, by an instinct of nature, the teat was drawn into the small orifice of the mouth by suction. I observed subsequently that the well-formed young I extracted from the vagina, which I rolled in warm cotton, was instinctively engaged in sucking at the fibres of the cotton, and had succeeded in drawing into its mouth a considerable length of thread. I may here remark that on the 21st of February of the present year a female opossum was sent to me late in the evening. She had been much wounded on being captured, and died in consequence a few days afterwards. On the morning after I received her I perceived in her pouch seven young; they had not been attached and were dead; abortion had taken place, and they had evidently been placed in the pouch by the mother's uncontrollable attachment to her offspring even after they were dead.

8. The opossum is one of the most prolific of our quadrupeds. I consider the early parts of the three months of March, May and July as the periods when they successively bring forth; it is even probable that they breed still more frequently, as I have observed the young during all the spring and summer months. I find in my notes the following memorandum: "May, 1830 In searching for insects, I was removing with my foot some sticks composing the nest of the Florida rat. I was startled on finding my boot unceremoniously and rudely seized by an animal which I soon ascertained was a female opossum. She had in her pouch five very small young, whilst seven others, about the size of full grown rats, were detected peeping from under the rubbish, and were captured."

9. An interesting inquiry remains to be answered. Is the opossum a placental or a non-placental animal? If I am to understand by this term, whether the opossum has or has not a placenta, I can readily answer in the negative. In these intricate matters the naturalist should, if possible, see with his own eyes, and speak at all times as feeling himself firm on his own feet. I have had all the opportunities I could have desired of perfectly satisfying my own mind on this subject, but can only state that in all the examinations I have made I could never find the slightest appearance of a placenta, and I do not believe that one exists.

I am, however, far from being equally satisfied on another point, to which I confess my observations were not directed until it was almost too late to make the necessary investigations. Although I do not believe that a placenta exists, or that there is any attachment of the fetus to the parietes of the uterus, it does not from hence follow as a natural consequence that there is no allantois. If an animal has a placenta, there is a sure evidence of the pre-existence of an allantois; but there is in many animals, and especially among the smaller species of Mar-

supialia, a modified structure in these parts; and the allantois, umbilical cord, as well as the omphalo-mesenteric arteries and veins may exist in the absence of a placenta. In the very unsatisfactory examinations I have been enabled to make on this subject, I came to the conclusion that there was some reason to believe that an allantois existed, and that there were some traces of the omphalomesenteric vessels running through the mucous substance in which the young lay imbedded. It is proper, however, to observe, that my friends Prof. Hume and Drs. Harbeck and Michel, who subsequently examined the well preserved specimen of the 15th, and the imperfect remains of the contents of the other uteri, came to the very opposite conclusion. I nevertheless hazard the conjecture that these appendages may yet be found in the uterus at an advanced stage of pregnancy. This suspicion, however, remains either to be confirmed or refuted by a more favorable opportunity for examination. Owen, in describing, in 1834, the fetus and membrane of the Kangaroo at apparently the middle period of uterine gestation, found its condition such as obtains in the viper and other ovoviviparous reptiles, there being no trace of the existence of an allantois. In 1837, however (see Magazine of Nat. Hist., p. 481), having received another specimen in a more advanced stage, he found numerous ramifications of the umbilical vessels constituting a true allantois. The umbilical cord extended three lines from the abdominal surface of the fetus. Having seen and examined that specimen, I may have unconsciously formed a theory which has misled me in conjecturing that I had observed a similar organization in the opossum.

Letter from Middleton Michel, M. D., of Charleston, S. C.

To the Rev. John Bachman, D. D.

DEAR DR.—You will oblige me by adding the few facts which I am able to state, concerning the habits and generation of our Opossums, to your valuable communication, addressed to the Philadelphia Academy of Natural Sciences.

1st. I have first noticed their mode of copulation, which though singular in itself, finds its explanation in the position and structure of the penis. The female, after repeated solicitations on the part of the male, which are conducted as among other animals, finally reclines upon her left side, being drawn into this position by the male; his front legs are employed in securing her, while the hinder ones are made to pass on each side of the loins of the female, over and between her hind legs. The penis, measuring two inches and more, is thus brought into more immediate relation with the sexual organs of the female. Copulation lasted five minutes. The sperm passes along the lateral canals, its only possible course, as the bifurcated organ of intromission is received to some distance into them.

2d. I have further determined, that the period of gestation is not twenty and twenty-two days as has been believed. I placed a female with the male on the 27th of January, and on the 28th, at 7½ o'clock, A. M., I witnessed them engaged in the act. She was left three days with the male, then isolated, and on the 12th of February, fifteen days after the first coitus, had her young, six in number, in the pouch. Admitting that the period may vary from fifteen to seventeen days, the having settled this point I regard of paramount importance in answer to another question to be shortly examined.

3d. The rut begins in January and continues till June, as I have seen young just received into the pouch during these months.

4th. The number of young is from *six* to *thirteen*. I have had a female with *thirteen* in the pouch; never less than *five*.

5th. The size of the young at birth is four lines in length, two in breadth; weight four grains.

6th. The structure of the male and female organs has been well described by *Cooper, Tyron, De Blainville, Home*, and others. But I would remark that there is no communication between the uterine extremity of the lateral tubes (or the sinus, as I would term it,) and the vagina, as figured by *Home* and others.

7th. This leads me to mention that parturition takes place as follows: the young pass down through the lateral tubes, there being no other exit for them, and immediately after parturition these canals are very much enlarged.

The mode of transmission to the pouch is a part of the process hitherto unknown, which I have recently witnessed as well as the nature of the circumstances would permit. The female stood on her hind legs, and the body being much bent, the young appeared at the vulva; they were licked into the pouch. They were born without any trace of an umbilical cord. The pouch was not interfered with for some time, when her mouth was introduced into it while her front paws held it open; after this manœuvre was completed, the little ones were all found attached to the teats. I would further remark that this attachment is an instinctive act on their part, as it is impossible to conceive of any interference of the mother effecting it. The mouths of the embryos present but an infinitely small opening, compared with the size of the teat, and with the hand it is an almost impossible attempt to attach them.

8th. The ova in the vesicles are larger in proportion than in other mammalia; the vitellus is enveloped by a thin vitelline membrane. The germinal vesicle is, however, in the same position as in other mammals; the transformation in the tubes, where I have met with one, after fecundation, appears the same as in the rabbit. In the uterus, the germinal membrane has the same structure and appearance as in the rabbit. This stage I witnessed, through *Dr. Bachman's* kindness, as he gave me the uterus to examine.

9th. Whether these animals be placental or non-placental, is a question which I cannot positively decide until I have finished the series of observations proposed, but the inference that they are not placental, is rendered legitimate, first, by the peculiarities in the structure of the brain and other organs, which show their close proximity to the bird; second, by no allantois attached and conveying blood vessels to the chorion; third, by the short period of gestation; for the ova were discovered in the uterus on the ninth day, and the period of gestation being fifteen or sixteen days would render such a structure needless.

The Committee on *Dr. Leidy's* description of a new fossil genus of Ruminantoid Pachydermata, reported in favor of publication.

On a New Fossil Genus and Species of Ruminantoid Pachydermata: Merycoidodon Culbertsonii.

By JOSEPH LEIDY, M. D.

*Merycoidodon.** This genus is founded upon two fragments handed to me by *Dr. Morton*, who obtained them for the cabinet of the Academy, from *Mr. Cul-*

* *μυρρινόδων*, rumino; *σώας*, forma; *ὀδών*, dens.

bertson, the same gentleman who lately enriched our collection by the deposit of the cranium of *Poëbrotherium*, described in the number of the Proceedings for Nov. and Dec., 1847.

One of the fragments is a small portion of the upper jaw of the right side, containing the posterior two molar teeth, and attached to a portion of the same kind of matrix, which partially enveloped the cranium of *Poëbrotherium*. The two teeth are perfect, with the exception that the antero-external demicone of the penultimate molar is broken away. The penultimate molar has four fangs, the internal ones of which are divergent from the external. The last molar was just upon the point of protruding so that the crown only is formed.

The other fragment is a portion two inches long of the right side of the inferior maxilla, and contains the posterior three molars. The internal half of the crown of the antepenultimate molar is destroyed, as is also a small projecting point on the internal surface of the penultimate molar. The last molar is in the same condition as the corresponding superior tooth. The external part of the upper enameled surface of the crown of the antepenultimate molar is worn away from the outside inwardly, as is also the edge of the same part of the crown of the penultimate molar.

The enamel is thin and about as rugose as that of *Cervus virginianus*.

The molars, like those of *Merycopotamus*,* have the antero-posterior cleft dividing the primary lobes, forming two bends triangular convex, inwards in the superior teeth, outwards in the inferior teeth; producing a crown having the ruminant pattern.

The inner demicones of the superior molars are triangular convex. Their inner surface inclines outwards from the base, at an angle of 65 degrees, and is a very little concave in this direction. The outer surface is concave, inclined at an angle of about 50 degrees, and runs into the outer demicones at the depth of from three to three and a half lines from the apex of the latter. The exposed part of their base is surrounded by a projecting ridge, about one-fifth of a line deep on the anterior and posterior sides of the tooth, and perceptible internally merely as a slight rising of the base, excepting opposite the interlobular depression, where a small irregular and rather inconspicuous tubercle exists, apparently formed by the union of the ridge of the two internal demicones at this point, but no ridge passes from this tubercle outwards into the interlobular fissure as in *Merycopotamus*.

The inner demicones fold around the external convexities of the external demicones. The antero-external edge of the enamel fold of the postero-internal demicone projects a line or more between the postero-external edge of the antero-internal demicone and the postero-external demicone, causing the latter edge to bend abruptly forwards towards the antero-external demicone.

The points of the exterior demicones project above those of the interior, less in the last than in the penultimate molar. The internal surface is triangular convex, with a little vertical inclination. The external surface is concave from side to side, nearly vertical, and is slightly elevated in a vertical line in the middle.

The postero-external angle of the postero-external demicone of the penultimate molar, forms a strong, rounded, vertical prominence, which in the last molar is

* Vol. 2, pl. 140, Fig. 8.

considerably more developed, so as to prevent the appearance of an almost distinct conical column.

Opposite the interlobular depression of the last molar, the exterior demicones combine to form a strong and much projecting, triangular, vertical ridge, the base of the triangle corresponding to the base of the crown. A similar ridge, though not quite so prominent, exists at the antero-external angle of the antero-external demicone. These ridges probably also existed in the penultimate molar, which is not capable of being determined from the imperfection of the specimen.

These teeth differ from the molar tooth of the *Merycopotamus*, figured in Owen's *Odontography*,* by being much smaller, the ridge along the base of the inner demicones being neither so strong nor rugged, in the projection of the enamel fold on the crown separating the antero-internal, from the postero-external demicone, by the presence of the two strongly prominent external ridges, and the absence or very slight development of the convex ridge at the bottom of the external concavities.

The inferior molars, in general appearance resemble those of *Dichobune*, Cuv.

The exterior demicones are a little longer and about as broad as the interior superior ones, and their external prismatic surface is not so much inclined. At their base, on the front and back of the teeth, there exists a ridge corresponding in its characters to that of the superior internal demicones. Between the two demicones at their base, exists a triangular tubercle, apparently produced by the union of the basal ridges of the demicones at this point. The supero-internal face is concave, but does not descend so much as the corresponding surface of the supero-internal demicones.

The points of the inner demicones, when compared with the exterior ones, rise higher than the corresponding or exterior demicones of the superior teeth.

Their external surface is compressed triangular or nearly convex, and nearly vertical. Internally they are more oblique, concave from side to side, but elevated into a broad convex ridge in the middle. The posterior angle has the appearance of being slightly twisted inwards, so as to produce a small prominence. Below the posterior prominent angle of the antero-internal demicone, and projecting from the base of the posterior demicone, is a small tubercle that looks as if squeezed in the angle of separation between the demicones.

In the specimen, the posterior molar has but two lobes, which if it be the normal condition, would be a remarkable peculiarity among the ruminantoid *Pachydermata*. A third lobe might have existed which has been broken off, although the tooth has no appearance of such a loss.

The breadth of the lower jaw, below the penultimate molar, is about equal to that of *Cervus virginianus*, and internally, just above the base and parallel to it, it is deeply depressed. The species I have named "*Culbertsonii*," in honor of the family, to whom science is indebted for the preservation of these interesting remains.

Measurements.†

Superior molars :—

Penultimate:

Greatest height of crown, at exterior demicones, 5

*Owen's *Odontography*, vol. 1, p. 566.

†The measurements are taken in English inches and parts of ditto.

Greatest transverse diameter, at base of posterior demicones,	. . . . .	.7
" antero-posterior diameter,	. . . . .	.675
" height of internal anterior demicone,	. . . . .	.375
" " " posterior "	. . . . .	.3
Breadth of internal demicones, at base,	. . . . .	.475
Length of external fangs,	. . . . .	.4
" internal,	. . . . .	.35
Posterior :		
Greatest height of crown, externally,	. . . . .	.5
" transverse diameter,	. . . . .	.7
" antero-posterior diameter,	. . . . .	.8
Length of internal demicones,	. . . . .	.3
Inferior molars :		
Antepenultimate :		
Greatest height of crown, internally,	. . . . .	.375
" transverse diameter,	. . . . .	.5
" antero-posterior diameter,	. . . . .	.6
Penultimate :		
Greatest height of crown,	. . . . .	.4
" transverse diameter,	. . . . .	.5
" antero-posterior diameter,	. . . . .	.6
Posterior :		
Greatest height of crown,	. . . . .	.433
" transverse diameter,	. . . . .	.5
" antero-posterior diameter,	. . . . .	.65
Breadth of lower jaw below penultimate molar,	. . . . .	1.05

Explanation of the Figures.

All the figures are of the size of nature.

Fig. 1. Represents an external view of the fragment of the upper jaw of the right side, containing the posterior two molar teeth of *Merycoidodon Culbertsonii*.

Fig. 2. Superior view of the same fragment, as fig. 1.

Fig. 3. External view of the fragment of the lower jaw on the right side, containing the posterior three molar teeth.

Fig. 4. Internal view of the same fragment as fig. 3.

Fig. 5. Superior view of the same fragment as fig. 3.

The Committee on two papers by Dr. Hallowell, entitled "Descriptions of two new species of *Onychocephalus*," and "Notes of the post mortem appearances of a *Cynocephalus papion*," reported in favor of publication.*

An amendment to Article IX. Chapter 8, of the By-Laws, altering one of the days of admission of the public from *Saturday* to *Friday*, was adopted.

*These papers will appear in the next number of the Proceedings.

Fig. 5.



Fig. 4.



Fig. 2.



Fig. 3.

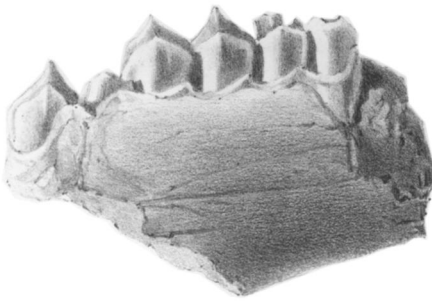
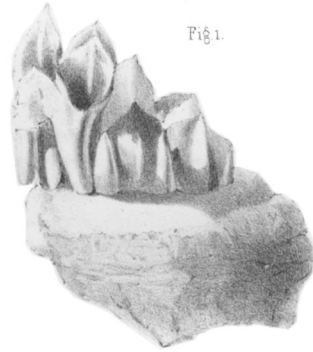


Fig. 1.



MERYCROIDODON CULBERTSONII, Leidy.

ELECTION.

Charles D. Meigs, M. D., of Philadelphia, was elected a *Member*,
and

Professor Eschricht, of Copenhagen,
Christian Gottfried Ehrenburg, of Berlin,
Prof. J. Frederick Schouw, of Copenhagen,
Col. J. C. Fremont, U. S. A.,

William L. Jones, M. D., of Riceboro, Georgia,
were elected *Correspondents* of the Academy.

DONATIONS TO THE MUSEUM

IN MARCH AND APRIL, 1848.

March 7th.

Two hundred specimens of American and Foreign Lepidoptera. From Dr. Wilson.

Two crania of *Vulpes fulvis*, one of *Strix nœvia*, one of *Falco* ———, and one of *Pipelo erythrophthalmus*. From Dr. Wilson.

Cineras vittata, from the Baltic. From Dr. Griffith.

March 14th.

Several specimens of Copper Ore, from the Bristol Mines, Connecticut. From Mr. T. Fisher.

Specimen in skin of *Petaurista taguanoides*, from Fort Jackson. From Mr. James Taylor.

Musci and Hepaticæ, from the Andes of Quito, collected by Mr. Wm. Jameson, and presented by him through Seth Swainson, Esq., U. S. Consul at Guayaquil.

The following extensive and valuable collections of Fossils were presented by Dr. T. B. Wilson.

1. Mr. Conrad's collection of *American* Fossils, containing about one thousand species and three thousand specimens, and including the originals of Dr. Morton from the cretaceous formation.

2. A general collection of *British* Fossils, from the Tertiary to the Lias inclusive, and also Fishes from the Old Red Sandstone, containing about two thousand five hundred species, and eight thousand specimens. This collection embraces a part of the selected specimens from the Cabinet of the late Miss Benett, of England, all of which have not yet been received.

3. A collection of *Italian* Fossils, from the Tertiary of Piedmont, containing about six hundred species and two thousand specimens.

4. A collection of *German* Fossils from the Tertiary, Solenhofen Slate, Muschelkalk, Zechstein, Kupferscheifer, Lias and Silurian, comprising about five hundred species and six hundred and fifty specimens.

March 21st.

Mounted Skeleton of *Ursus Americanus*, (young). From Mr. L. J. Germain.

Mounted Skeleton of *Procyon lotor*. From Mr. L. J. Germain and Dr. Watson.

Skeleton of *Cynocephalus papion*, (young). From Dr. Watson.

Skeleton of *Hapale œdipus ornatus*. From Dr. Hallowell.

Fifteen Peruvian crania from Pisco, near Lima, and three Peruvian vases, collected by Mr. William A. Foster, and deposited by Dr. Morton.

Specimen of *Scarabæus tityus*, from Cape May. From Dr. Townsend.